APPENDIX B

Docket No.: 1509-239 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	EXPEDITED PROCEDURE
KOCH II, KENNETH	:	
U.S. Patent Application No. 10/167,507	:	Group Art Unit: 2816
Filed: June 13, 2002	:	Examiner: NGUYEN, LONG T.

For: CAPACITOR CONTROLLED DRIVER DESIGN

SUPPLEMENTAL RESPONSE AFTER FINAL REJECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants hereby supplement the response submitted September 22, 2003 concerning the referenced application. This supplemental response includes further evidence that came to the attention of attorney for applicants after submission of the September 22, 2003 response. The evidence shows that the capacitors of the Steele reference are, in fact, conventional capacitors, not switched capacitors.

The evidence is pages 55, 56, 62 and 97-102 from Kang et al., "CMOS Digital Integrated Circuits Analysis and Design," 2nd Edition, © 1999 McGraw-Hill Co., copies enclosed. This evidence indicates the Steele MOSFET capacitors do not necessarily operate as switched devices and leads to the conclusion that the MOSFET capacitors of these references function as conventional capacitors, since the references do not attribute any switching characteristics to the MOSFET capacitors and, in fact, indicate the MOSFET capacitors are not switched, as discussed in the originally submitted response.

The attention of the Examiner is directed to the following statement on page 62 of Kang et al.:

> . . . the threshold voltage of an n-channel MOSFET can also be made negative. This means that the resulting nMOS transistor will have a conducting channel at $V_{GS} = 0$, enabling current flow between its source and drain terminals as long as

> V_{GS} is larger than the negative threshold voltage. Such a device is called a *depletion-type* or *normally-on* n-channel MOSFET.

The Examiner's attention is also directed to the sentence bridging pages 55 and 56 which states:

> If a conducting channel already exists at zero gate bias, on the other hand, the device is called a *depletion-type* or *depletion-mode* MOSFET.

A depletion mode MOSFET always has a finite capacitance between its gate electrode and the source/drain electrodes which are connected together because the source/drain path of a depletion mode MOSFET is not cut off; see the discussion about MOSFET capacitors on pages 97-102 of the Kang et al. book. Fig. 3.31 and the discussion thereof indicate that when the source/drain path through the substrate is cut off (discussed in connection with Fig. 3.31(a)) there is no capacitance between the gate electrode and source/drain electrodes of the MOSFET. However, this cut off situation does not occur in a depletion mode transistor because, as discussed by Kang et al. on page 62, the source/drain path of a depletion mode MOSFET is not cut off. If a MOSFET is operated in either a linear mode or a saturation mode, as respectively indicated by Kang et al. in Figs. 3.31(b) and 3.31(c), a finite capacitance is provided from the gate electrode through the conducting channel to (1) the source and drain electrodes (linear operation) or (2) the source electrode (saturated operation). Since a depletion mode MOSFET is always conducting, and the source and drain electrodes of a MOSFET which is operated as a capacitor are connected together, a finite capacitance always exists between the electrodes of a depletion mode MOSFET, and such a device operates as a conventional capacitor that is not switched.

Based on the foregoing evidence and the arguments advanced in the September 22, 2003 response, In re Best et al. 195 U.S.P.Q. 430 is not controlling in the present situation. In Best et al., all the positive process limitations were expressly disclosed except for the functionally expressed rate of cooling. There was nothing in the reference relied on by the Examiner to indicate that the rate of cooling was in any way different from the normal rate resulting from removal of a heat source. In other words, the reference being relied on for inherency was completely silent on the critical issue of cooling. However, as noted by the Examiner, Board and the Court, in Best et al. it was inherent that an object must be cooled to facilitate subsequent handling.

The foregoing evidence and the previously submitted arguments indicate the principles of the Best et al. case are not applicable to this application because applicants have presented evidence and arguments showing Steele does not inherently operate as claimed. Based on the foregoing and the arguments set forth in the September 22, 2003 response, Steele does not adversely affect the patentability of the claims of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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